

<u>P53821C</u> 30 November 1999

Applicant: Richard G. Hyatt Jr.

Serial No.: 08/720,070

Filed: 27 September 1996

For: ELECTROMECHANICAL CYLINDER PLUG

Document filed:

1. Fee Transmittal/check(s)(#34173) of \$153.00

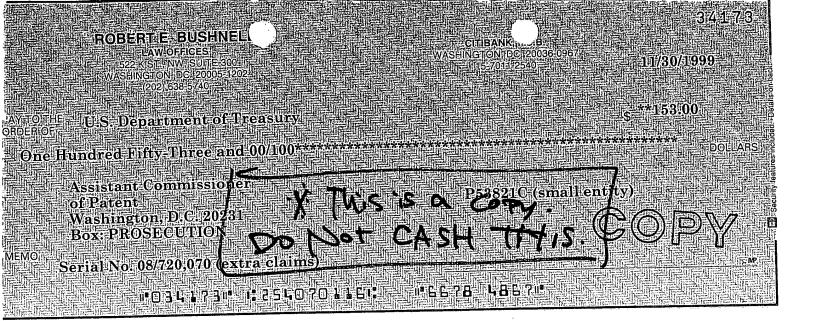
2. Substitute Amendment

3. Cover sheet to Examiner Boucher (Faxed)





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| These are the fees effective October 1, 1997. | | | | , F | First Named Inventor | | | | Richard G. Hyatt Jr. | | | | |
| | | | | E | Examiner Name | | | | Boucher, D. | | | | |
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Richard G. Hyatt Jr.

Serial No.:

08/720,070 (**CPA application**)

Examiner:

BOUCHER, D.

Filed:

27 September 1996

Art Unit:

3627

For:

ELECTROMECHANICAL CYLINDER PLUG

SUBSTITUTE AMENDMENT

Assistant Commissioner for Patents Washington, D.C. 20231

Sir:

In substitution for Applicant's papers earlier filed on the 6th of October and 17th of November 1999, and in response to the premature Office action dated 17 August 1999 (Paper No. 25), entry of the following amendments, re-consideration and re-examination are respectfully requested.

Folio: P53821C Date: 11/30/99 I.D.: REB/mf



IN THE CLAIMS

Please do not cancel any claims, amend Claims 25, 39, 43, 46 and 56, and add Claims 64 through 84, as follows:

25. (Thrice Amended) A lock, comprising:

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a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar interposed between said shell and said cylinder plug to reciprocate generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation, said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving between a first orientation and a second and different orientation providing obstruction of said bar.

39. (Amended) The lock of claim 25, further comprising:

a [basic] logic circuit generating said control signal in response to a comparison



| 3 | between a code set within said logic circuit and a [date] data signal applied to said logic circuit; |
|----|--|
| 4 | a conductor provided by said plug, conveying said data signal to said logic circuit; |
| 5 | and |
| 6 | said electrical operator moving between said second orientation and said first |
| 7 | orientation in response to said control signal. |
| | |
| 1 | 43. (Amended) A lock, comprising: |
| 2 | a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing |
| 3 | a slot within said recess; and |
| 4 | a plug rotatable from a rest orientation around said longitudinal axis while resident |
| 5 | within said hollow recess relative to said cylinder; and |
| 6 | an elongate member positioned between said cylinder and plug while extending into |
| 7 | said slot, and providing simultaneous engagement of said cylinder and said plug while said plug |
| 8 | remains in said rest orientation; |
| 9 | said plug comprising: |
| 10 | a first base bearing an orifice spaced-apart from and separated by a mass of |
| 11 | said plug from said keyway; |
| 12 | a second base separated by an axial length of said plug from said first base, |
| 13 | said second base disposed to support a cam, said mass being penetrated by a radially oriented |
| 14 | aperture; |



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an exterior surface extending between said first base and said second base;

| 16 | a conductor having a terminal exposed to an exterior of said first base through |
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| 17 | said orifice; |
| 18 | an electronic logic circuit comprising a memory storing a code, said circuit |
| 19 | being borne by said plug and coupled to receive data signals via said conductor, said circuit |
| 20 | generating control signals in dependence upon a comparison between said code and |
| 21 | information borne by said data signal; [and] |
| 22 | an electrical operator mounted within said aperture, said operator having a |
| 23 | movable member [travelling] traveling in dependence upon said control signals between a |
| 24 | first position relative to said exterior surface maintaining said simultaneous engagement and |
| 25 | a second and different position relative to said exterior surface accommodating movement |
| 26 | between said plug and said cylinder: and |
| 27 | a component biasing said movable member to maintain said simultaneous |
| 28 | engagement. |
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| 1 | 46. (Amended) A lock, comprising: |
| 2 | a shell containing a hollow recess defining a longitudinal axis and an interior |
| 3 | cylindrical surface; |
| 4 | a cylinder plug rotatable around said longitudinal axis while resident within said |
| 5 | hollow recess; |
| 6 | a bar borne by said plug and rotatable with said plug relative to said shell, said bar |
| 7 | being interposed between said shell and said cylinder plug to reciprocate generally along a radial |

plane between a first position engaging both said shell and said cylinder plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation, said cylinder plug comprising: 10

a first base and a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam; and

an electrical operator being electrically operable to respond to an electrical control signal by moving obstructing movement of said bar between said first position and said second position in response to a first state of said control signal and [accommodating] moving within a second and different plane not coextensive with said radial plane in response to application of said control signal to accommodate said movement of said bar in response to a second and different state of said control signal.

56. (Amended) A lock, comprising:

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a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a plug rotatable around said longitudinal axis while resident within said hollow recess;

an elongate member interposed between said shell and said plug to travel generally along a radial direction between a first position engaging both said shell and said plug while obstructing rotation of said plug within said recess, and a second position accommodating said rotation;



said plug comprising:

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a first base perforated by an aperture, and a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam;

a logic circuit borne by said plug and rotatable with said plug, conveying said data signal between said aperture to said logic circuit; and

direction not aligned with said radial direction between a first orientation obstructing said travel and relative operable movement between said shell and said plug while said electrical operator is contained wholly within said plug, and a second and different orientation accommodating said travel and said relative operable movement between said shell and said plug.

--64. A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along



a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating an electrical control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving between a first orientation providing obstruction of said travel and a second and different accommodating said travel.

--65. A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;



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circuit; and

travel.

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electrically conducting material that is borne by said cylinder plug and wound to drive said armature

orientations in response to said control signal.

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a logic circuit generating a control signal in response to a comparison between a code

an electrical conductor provided by said plug, conveying said data signal to said logic

an electrical operator comprising an armature, said armature being borne by said

The lock of claim 65, with said electrical operator further comprising a coil of an

The lock of claim 65, with said electrical operator further comprising a coil of an

The lock of claim 65, with electrical operator further comprising a coil of an

cylinder plug and rotating around said longitudinal axis with said plug, said electrical operator being

electrically operable to respond to said control signal by moving between a first orientation

providing obstruction of said travel and a second and different orientation accommodating said

electrically conducting material that is borne by said cylinder plug and wound to drive said armature

to move from one of said first and second orientations to the other of said first and second

electrically conducting material that is borne by said cylinder plug and wound to drive said armature

to move from said first orientation to said second orientation in response to said control signal.

set within said logic circuit and a data signal applied to said logic circuit;

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to rotate around an arc in response to said control signal.

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| 69. | The lock of claim 65, with said electrical operator further comprising a coil of an |
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| electrically o | onducting material that is borne by said cylinder plug and wound to drive said armature |
| to reciprocat | e along a radial axis that is transverse to said radial plane in response to said control |
| signal. | |

--70. A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logical circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and



an electrical operator borne by said cylinder plug and rotatable with said plug, said
electrical operator being electrically operable to respond to an electrical control signal applied to said
electrical operator by moving along a geometrical construct other than to said radial plane between
a first orientation providing obstruction of said travel and a second and different orientation
accommodating said travel.

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- --71. The lock of claim 70, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move along said geometric construct in response to said control signal.
- --72. The lock of claim 70, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move along said geometric construct in response to said control signal from said second orientation to said first orientation.
- --73. The lock of claim 70, with said geometric construct comprising an arc and said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around said arc in response to said control signal.
 - --74. The lock of claim 70, with said geometric construct comprising a radial axis that is

transverse to said radial plane, and said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to reciprocate along said radial axis in response to said control signal.

--75. A lock, comprising:

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a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along a radial axis that is transverse to said radial plane, between a first orientation providing obstruction of



said travel and a second and different orientation accommodating said travel.

--76. A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along said radial axis between a first orientation providing obstruction of said travel and a second and different



orientation accommodating said travel.

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--77. A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug and transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to a control signal by moving between a



first orientation providing obstruction of said travel and a second and different orientation accommodating said travel.

--78. The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from one of said first and second orientations to the other of said first and second orientations in response to said control signal.

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- --79. The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from said first orientation to said second orientation in response to said control signal.
- --80. The lock of claim 25, with electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around an arc in response to said control signal.
- --81. The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to reciprocate along a radial axis that is transverse to said radial plane in response to said control signal.



| 1 | 82. The lock of claim 25, further comprised of a component biasing said bar to maintain |
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| 2 | said first position engaging both said shell and said plug. |
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| 1 | 83. The lock of claim 25, further comprised of a component biasing said electrical operator |
| 2 | to maintain said second orientation providing obstruction of said bar. |
| | |
| 1 | 84. The lock of claim 25, further comprised of: |
| 2 | a first component biasing said bar to maintain said first position engaging both said shell and |
| 3 | said plug; and |
| 4 | a second component biasing said electrical operator to maintain said second orientation |
| 5 | providing obstruction of said bar. |

REMARKS

Claims 1 through 84 are pending: claims 25, 39, 43, 46 and 56 are amended while claims 64 through 84 are newly presented.

The request for cancellation in Applicant's paper of the 6th of October erroneously identified the wrong claims for cancellation. It was Applicant's intention to have canceled, among others, non-elected claims 33 and 35, but through typographic error, the amendement inadvertently directed the cancellation of the claims for the proposed interference. To avoid another mistake, this paper is filed in substitution of the papers dated 6 October and 17 November 1999, no claims are canceled and claims 1 through 84 <u>all</u> remain pending. The Examiner's indication of readiness to issue a Declaration of Interference after the conclusion of the current year, is noted with appreciation.

Amended claims 39, 43, 46 and 56, together with newly added claims 64 through 84, define, among other things, the elected species of Figs. 8A through 8G. The Applicant notes that the Examiner had asserted that claims 43 through 45 were withdrawn from consideration; Applicant notes however, that claims 43 and 44 clearly define the elected species, while claim 45 depends upon the more generic parent independent claim 43. Accordingly, claims 43 and 44 must be considered.

Claims 25 through 31, 39 through 42, 46 through 52, 54 and 56 were alternatively rejected under 35 U.S.C. §102(e) as anticipated by, or under 35 U.S.C. §103(a) rendered obvious by,



Gokcebay U.S. 5,552,777. Applicant traverses these rejections for the following reasons.

Each of these claims, together with newly presented claims 64 through 84, define, "inter alia," a "bar" interposed between a shell and a cylinder plug, and an "electrical operator". As defined by claim 25, for example, the electrical operator is "electrically operable to respond to a control signal by moving" In contradistinction, Gokcebay '777 uses a spring 48 that does not, respond to either a control signal or to any electrical stimulus by moving. The Examiner's attention is directed to the transitive and intransitive sense of the verb "move". In effect, the Examiner is rewriting Applicant's claims to substitute "by being moved between" for the express language currently used by these claims of "by moving between." This is an impermissible interpretation of Applicant's claims. In both mechanical and electrical analogues, the spring is considered as a passive, rather than an active component; consequently, the spring does not move itself, and must be moved by some external force. Applicant's electrical operator is defined by these claims as "being electrically operable to respond ... by moving between" These distinctions are significant because they provide Applicant with indirect, rather than direct locking, and a concomitant increase in mechanical advantage to the user of components such as a side bar or detent. These features are utterly lacking from the art represented by Gokcebay '777.

Moreover, the Examiner's interpretation of Gokcebay '777 to identify his spring 48 as something that is "considered electrically operable" is improper, and contrary to the express teachings of Gokcebay '777. In claim 1 of Gokcebay '777, by way of the example, lines 10 through



14 define the spring while lines 21 through 26 define the operator. These components are distinct, serve distinct functions and cannot be twisted, in their meaning, like a nose made of wax, in order to improperly read these components upon Applicant's language.

Even assuming *arguendo* that the Gokcebay '777 blocking pin/armature item 38 is a "bar" instead of an armature and blocking pin, the Examiner's interpretation still has overlooked how the lock of Gokcebay '777 works and how that is different from the pending claims. According to Gokcebay '777, the "compression spring" item 48 is described in "Description of Preferred Embodiments" in Section 6 line 43 as follows: "The small solenoid 36 when powered overcomes the force of the compression spring 48. In section 8, line 21, it reads "When the solenoid is powered the blocking pin 38 will be released ie: retracted, and the operator [a human person] will be able to rotate the key in the lock, since the key bittings will match the bittings in the lock." Line 26 reads "the master ie: the microprocessor 72 sends the unique number again to U1 to turn off U2 and Q1, stopping the current to the solenoid and allowing the compression spring to *push the blocking pin outwardly* when the cylinder plug is returned to the locked position".

Of course the Gokcebay drawings illustrate the blocking pin/armature as being one in the same component, with the spring constituting merely a spring, and not, as was asserted by the Examiner, an "electrical operator".

If the Examiner believes that the "electrical operator" of the pending claims might be read



as the spring of Gokcebay '777 and that the blocking pin of Gokcebay '777 could be read as a "bar" or sidebar, then Gokcebay's spring does not provide "obstruction of said bar" as defined by Applicant's claims because, in fact, the spring provides no obstruction. It does exactly what Gokcebay describes, by biasing the blocking pin outwardly in the same manner as any biasing element, it intrinsically lacks the structure and is inherently devoid of the capacity to "obstruct" the "bar" simply because the same spring must freely and continuously, even in the absence of Applicant's control signal, allow full reciprocation of the blocking pin of Gokcebay '777. Spring 48 of Gokcebay '777 is neither able to both concurrently and simultaneously "respond to" Applicant's control signal, provide Applicant's "obstruction of said bar," or be "electrically operable". Consequently, spring 48 cannot be considered to "be electrically operable" as asserted by the Examiner in support of this rejection. Moreover, if spring 48 were "electrically operable to move ...," then solenoid 36 of Gokcebay '777 would have no function. In short, the Examiner must consider "the subject matter" of each of these claims "as whole" in conformance with the requirement of §103, and must recognize that determinations of obviousness require an evaluation of all of the elements of each claim. The Examiner cannot accurately assert that "spring 48" of Gokcebay '777 has all of the characteristics and attributes of "blocking pin 38" of Gokcebay '777 without impermissibly requiring the solenoid 36 and spring 48 to function in a mode that is contrary to the express teachings of Gokcebay '777.

Applicant's notes that newly presented dependent claims 82 through 84 are readily distinguishable from art of records such as Gokcebay U.S. Patent No. 5,552,777, by the presence of



components biasing either the bar or the electrical operator, and that if a spring in Gokcebay '777 is interpreted as constituting an "electrical operator", as is explained in page 5 of the Examiner's comments in Paper No. 25, it would be impossible to interpret Gokcebay '777 or Gokcebay U.S. paetnt No. 5,367,293 as either anticipating or making a prima facie showing of obviousness. It is these differences in detail, in combination with the elements of the parent claim 25, that advantageously endow Applicant's embodiments with their ability to quickly retrofit in existing cylinder lock with an additional and increased level of security. Accordingly, claims 82 through 84 are in condition for allowance.

In view of the foregoing distinctions, and the advantageous results flowing therefrom, withdrawal of these rejections and allowance of claims 25 through 33, 39 through 56, and newly added claims 64 through 84 is required.

A fee of \$426.00 (SMALL ENTITY) was incurred by seventeen (17) extra claims and seven (7) extra independent claims. The check of Applicant's attorney drawn to pay to the order of Commissioner of this amount, was presently paid. This paper incurs a fee of \$153.00 (SMALL ENTITY) is incurred by four (4) excessive claims including three (3) independent claims. Applicant's check drawn to the order of Commissioner accompanies this Substitute Amendment. Should the check become lost, should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.



In view of the foregoing amendments and remarks, all claims are deemed to be in condition for allowance. Entry of these amendments, withdrawal of the single outstanding art rejection and passage of this application to issue is respectfully requested. Should questions remain unresolved however, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,

Robert E. Bushnell,

Attorney for the Applicant Registration No.: 27,774

1522 "K" Street N.W., Suite 300 Washington, D.C. 20005-1202 (202) 638-5740

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